

AMENDMENTS TO THE SPECIFICATION

Page 4, line 1 to page 4, line 10.

Referring to Figure 1, data from the first category, CPU information, is represented by logical step 101. Logical step 101 allows input of the CPU information into a computer program. CPU information includes the horizontal and vertical distances from the heat sink to the CPU. CPU information also includes the distance from the CPU to the ground. Finally, CPU information includes the frequency range of the radiation noise emitted from the CPU and is denoted f_{hi} (frequency-high)- f_{low} (frequency low). The program will also consider a second set of parameters for a CPU. A second set of parameters allows the program to calculate the radiation produced by a single computer having two CPUs, sometimes referred to as a multiprocessor.

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The second category of data includes the physical characteristics of the heat sink and is input into the computer program in logical step 102. Data from the second category includes heat fin geometry. Specifically the size, shape, location and number of fins on the heat sink are inputs to the program. Finally, the number of bars of each heat sink is included in this, the second data category. (Note, a fin is a vertically oriented radiating surface, a bar is a horizontally oriented radiating surface.)

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In its first calculation, logical step 103, the program applies a modulated Gaussian pulse as excitation. The program uses finite differences in the time domain (FDTD) to solve Maxwell's equation. Maxwell's equation provides a method to predict the electromagnetic wave in 3 dimensions. Solving Maxwell's equation with the variables input in logical steps 101 and 102 provides an estimate of the electronic electrical field and magnetic field distribution. In logical step 103, based on the electronic electrical and magnetic fields as predicted by Maxwell's equation, the program extrapolates radiation produced by the CPU at specific distances, the desired output.

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If, in logical step 109, the program determines the current density is optimized, the program continues to logical step 111. Logical step 111 calls a fast Fourier transform (FFT) which transforms the FDTD results from a time domain into a frequency domain. If the electromagnetic interference (EMI) is optimized then the program proceeds to logical step 114. Logical step 114 determines if the range of the magnetic resonance of the cpu CPU (f_{cpu}) includes the magnetic resonance of the heat-sink sink (f_r). If f_r falls within the range defined by f_{cpu} then the program continues to logical step 121, and the program accepts a manual adjustment to the current loop length. Adding fins to the heat sink increases the loop length due to the lengthened path the current follows along the added fins. The current loop length is decreased by adding bars to the heat exchange. Adding bars provides an alternate path for the current, thus decreasing the current path.

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As in Figure 1 before, the process continues to a fast Fourier transform (FFT) as represented by logical step 111. In this embodiment, fast Fourier transfers data only from the time domain to the frequency domain. In this embodiment, the time domain analysis is omitted. The analysis is completed in the frequency domain only. After ~~solving~~ obtaining the transforming data using the fast Fourier transform, logical step 111, the process confirms that the electromagnetic interference is at an acceptable level, logical step 112. If the electromagnetic interference is at an acceptance level, the process stops, logical step ~~130~~ 113.